

**Best Practices and Recommended Improvements to the
Natural Resource Protection Regulations
For Teton County and the Town of Jackson, Wyoming**



©Thomas D. Mangelsen

March 2016

Table of Contents

Introduction	3
<i>Process: Research and Stakeholder Interviews</i>	3
Executive Summary	5
Findings	6
Topic #1: Environmental Analysis Review Process	6
<i>Background</i>	7
<i>Interview Findings</i>	8
<i>Research Findings</i>	8
<i>Summary & Recommendations</i>	9
Topic #2: Waterbody & Wetland Buffers	11
<i>Background</i>	12
<i>Interview Findings</i>	13
<i>Research Findings</i>	14
<i>Summary & Recommendations</i>	17
Topic #3: Natural Resource Overlay (NRO) Standards	17
<i>Background</i>	18
<i>Interview Findings</i>	19
<i>Research Findings</i>	20
<i>Summary & Recommendations</i>	22
Topic #4: Vegetative Cover Type Standards	23
<i>Background</i>	23
<i>Interview Findings</i>	24
<i>Research Findings</i>	24
<i>Summary & Recommendations</i>	25
Appendix	
Next Steps/ Items for Further Research	26
References	28
Other	30
1. <i>List of Stakeholder Interviewees</i>	30
2. <i>Interview Questions</i>	31
3. <i>Interview Responses</i>	34
4. <i>Summary of Riparian Setback Research</i>	42
5. <i>Montana Fish, Wildlife & Parks' Total Building Setbacks</i>	44

The Alliance extends a sincere thank you to Alice Roby for her hard work in compiling information in this paper.

Introduction

The Jackson Hole Conservation Alliance believes we have a responsibility to write land use rules that align with our community's vision as articulated in the 2012 Jackson/Teton County Comprehensive Plan. This is a vision of a community that preserves and protects the area's ecosystem in order to ensure a healthy environment, community, and economy for current and future generations; a community with healthy populations of all native species that preserves the ability of future generations to enjoy the quality natural, scenic, and agricultural resources that largely define our community character; a community with walkable neighborhoods surrounded by protected open space, working agricultural lands, and connected wildlife habitat.

The natural resources provisions in the Town of Jackson and Teton County's land development codes play a defining role in determining whether or not our community achieves this vision. With the Town and County poised to update their respective natural resource provisions, the Jackson Hole Conservation Alliance performed research on state of the art natural resource protection provisions and best practices that should help guide this update process toward our community's vision.

This research should help our elected representatives and planning staff more effectively align updates to the natural resources provisions in our land development codes with our community's shared vision of a better future.

Process: Research and Stakeholder Interviews

Research:

The Alliance set out to assess where Teton County falls on the spectrum of protection standards for wildlife habitat in order to determine where we are weak or strong and discover innovative regulatory tools being used in other places that might be applicable here. We researched the land use codes of numerous jurisdictions in the Western United States as well as model codes and recommended standards written by governmental agencies and non-governmental organizations. We primarily focused on the Intermountain West with ecosystems similar to Teton County; however, our search for model codes uncovered best practices in Alberta, Canada; Portland, Oregon; and Maine. We utilized these best practices in our recommendations. For the purpose of this white paper, the term 'natural resources' should be understood to incorporate 'wildlife habitat'.

Stakeholder Interviews:

We interviewed local professionals representing a variety of disciplines who interface with the current natural resource provisions in order to hear from the experts who have hands-on knowledge of the functionality and effectiveness of the existing regulations. We gleaned their perspective on what currently works well and what specific modifications should be considered to improve the functionality of our protection standards. The interviewees' names and the interview questions are supplied in the Appendix of this report.

While recognizing that there is no "one size fits all" approach to wildlife and natural resource protection, we have distilled the information from our research and interviews into a list of recommendations for the Town to consider during the process of updating the Natural Resource Regulations. It is important to recognize the attributes of the current Natural Resource Regulations while we discuss how to strengthen them. Teton County's Natural Resource Regulations were groundbreaking when they came out in 1994 and continue to be referenced as a model for the west. The professionals we interviewed praised the Natural Resource Regulations for protecting the most sensitive natural areas of the valley. Indeed, Teton County's standards are highlighted in the "Successful Communities Online Toolkit information exchange" (SCOTie). SCOTie, founded by the Lincoln Institute of Land Policy and the Sonoran Institute, is a database of model smart growth and resource protection policies from communities across the West (SCOTie.org).

Since the 1994 Natural Resources Regulations were approved, twenty years have passed and the 2012 Jackson/Teton County Comprehensive Plan has been adopted. Now, the Town and County Planning Departments are busy implementing the community vision and values contained in the Comprehensive Plan, paying particular attention to: "Wildlife and open space protection [as] the most important value in the community."

Additionally, Jackson Hole is part of the most intact ecosystem in the lower 48 states (the Greater Yellowstone Ecosystem). Thus, the Jackson/Teton County Natural Resource Regulations should be state of the art and incorporate the highest standards and practices for wildlife and resource protection while still respecting private property rights. This twenty-year update is the ideal opportunity to achieve these community goals.

Executive Summary of Recommendations

- Make enforcement a priority.* Enforcement of the Natural Resource Regulations is the single largest improvement that our community can make and is critical to the well being of our natural resources.
- Incorporate the recommended Safer for Wildlife Fencing Standards* into Town and County land development regulations (LDRs) in place of the existing Wildlife Friendly Fencing standards and include these provisions in the NRR draft for public review.
- Hire a wildlife biologist* on Town/County Planning and Development Staff.
- Adopt similar NRR provisions for both the Town and County.* Right now the Town does not have adopted NRR provisions.
- Require all parties* called upon by the Town or County to review and comment on the Environmental Assessment application, to attend or send their input to the pre-application conference.
- Revise the Environmental Analysis Review Process to *require the consultation of a wildlife biologist at the pre application conference* if one is not on staff.
- Revise the pre-Application process and conference to include all interested parties,* the application/owner, the EA consultant(s), the staff, and all commenting agencies. It would be best if these were put on a public calendar so interested members of the public could also attend.
- Change the process to *require applicants to perform the habitat inventory before determining the location of the proposed use or development.* The habitat inventory should inform the location of development and take place prior to applicants investing in site design, engineering, and layout plans for development that is location specific, when that location may not be appropriate.
- Change the definition of "stream,"* specifically the characteristics for flow level and habitat.
- Increase all water body and wetland setbacks/buffers,* based on current and relevant science.
- Require setback standards for irrigation-induced wetlands and irrigation-induced riparian habitats.*
- Tier classifications and protection standards for wetlands* from highest value to lowest value.
- Expand the Natural Resources Overlay and Standards* to protect additional habitats and species of concern, such as Cutthroat Trout.
- Remove the vague, immeasurable, and unenforceable language in Crucial Wildlife Protection Standards that reads "...unless the applicant can demonstrate that it can be located in such a way that it will not detrimentally affect" crucial wildlife habitat.*
- Require setbacks to buffer migration routes, crucial winter ranges, and daily movement patterns* from development encroachment.
- Re-title "Vegetative Cover Type Standards" to "Habitat Type Standards."*
- Include the five categories of 'waterbodies' in the ordinal ranking standards for vegetative cover/habitat types.*
- Rank habitat type based on its importance to wildlife, and the uncertainty of successful mitigation,* with some habitats deemed irreplaceable.

- Rank all native vegetative cover types higher than lands in agricultural use.

Additional Recommendations

- Update natural resource maps to include wetlands and riparian and determine what impacts would be of increased setbacks per the recommendations in this paper.
- Public projects, town, county, and state should be subject to the same environmental rules and regulations and all undergo the same environmental assessment process, for at least major projects, if not all projects on lands containing natural resources.

Findings

Topic #1: Environmental Analysis Review Process

1.1. Require all Town and County departments, and all commenting agencies, to be present at or provide written comments to the pre-application conference. The property owner or owner's representative shall be present, as well as any EA consultants retained for the project. The Plan Review Committee shall be in attendance or send written comments. The wildlife biologist and EA consultants shall be at this meeting. Steps in the EA analysis should be revised, as noted below:

- Agencies such as Wyoming Game and Fish and Teton Conservation District should be enlisted for a site assessment prior to the pre-application conference and the Habitat Inventory stage of the review process. At a minimum, they should be represented at the pre-application conferences and should have performed their own site visit prior to the pre-application conference.
- The Development Impact Analysis and Alternatives Analysis should not occur until after the Habitat Inventory is completed and approved. The Habitat Inventory should inform the Development Impact Analysis and Alternatives Analysis.
- All meetings with staff and the EA consultant(s) shall also include the owner or owners' representative and anyone else the owner desires to have at the meeting.

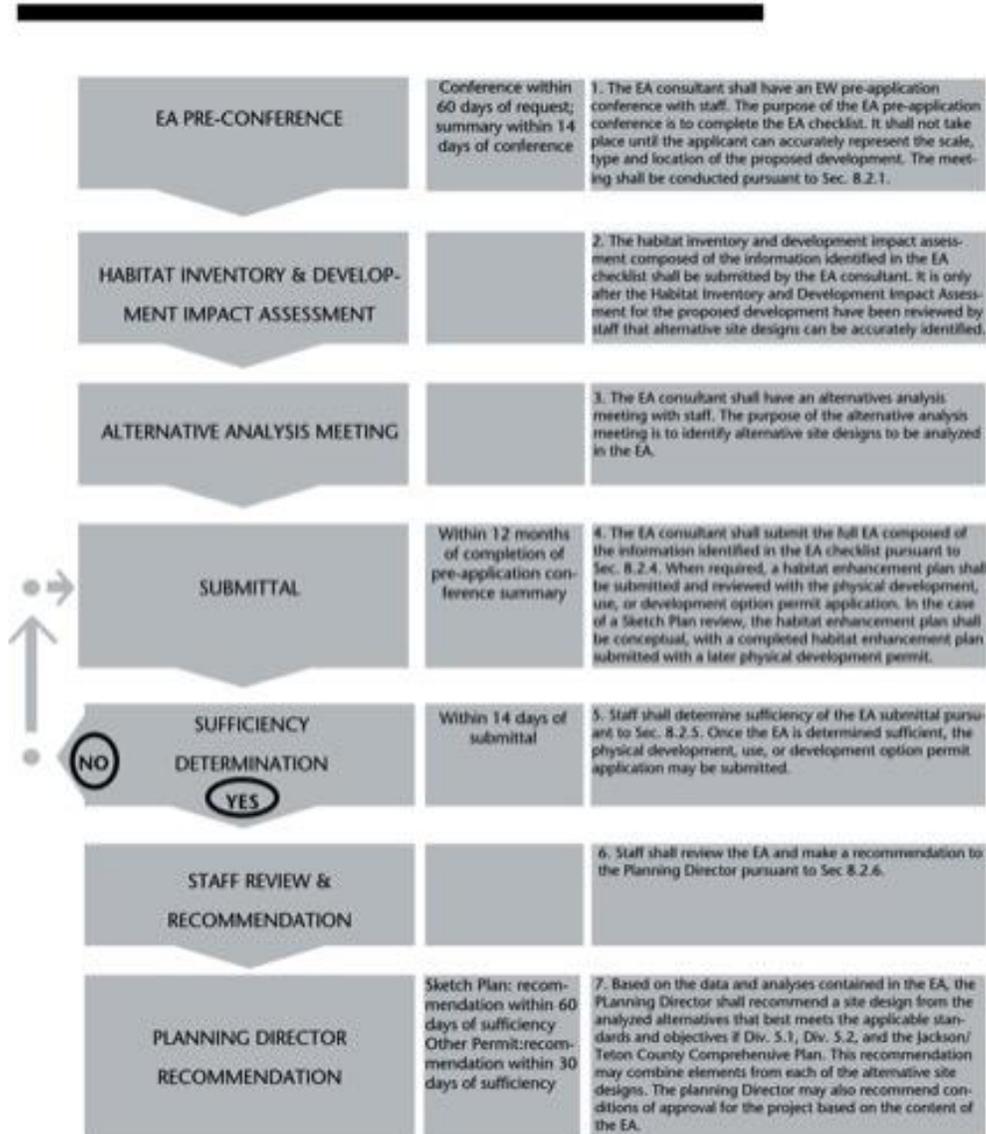
1.2. Hire a wildlife biologist on County Planning and Development staff

- A County Staff wildlife biologist is necessary to provide the expertise needed to administer the Natural Resources Regulations and Environmental Assessment processes and code enforcement.

Environmental Analysis Review Process Background

The purpose of an Environmental Analysis (EA) is to coordinate the application of all natural resource protection standards through identification of the natural resources on a site. An EA review does not result in development or use application approval. Instead, it results in recommended natural resource protections for a development or use application.

Environmental Analysis: How it currently works



Environmental Analysis Review Process Interview Findings

The overall opinion of the current EA process, especially the practice of having applications reviewed by the Plan Review Committee (PRC), was generally considered positive by our interviewees. Also expressed, however, was the desire to have the agencies represented on the PRC brought into the discussion much earlier in the review process. Additionally, the opinion that having a wildlife biologist on County Staff would strengthen and streamline the EA review process was echoed throughout the interviews. It is not optimum to have rules on the books you don't have the expertise to enforce. This suggestion would remedy that challenge.

One interviewee lamented that the PRC review process is quite lengthy, and the review comments often contradict the recommendations made by the EA consultant. This often frustrates the applicant, who has already spent time and money on the development design. The EA consultants also spend considerable time on their analyses and find it frustrating to have their recommendations contradicted.

The wildlife and natural resource agencies of the PRC that we spoke to strongly advocated for their involvement to occur at the front end of the process prior to the application being submitted. It was expressed that having the applicant, a county staff wildlife biologist, the EA consultant, and the PRC biologists collectively engage in a site assessment *prior* to the applicant undertaking the plan and site design work would reduce frustration for all parties, save time and money, and deliver the best possible outcome for the protection of wildlife habitat on the property. This is how pre-application processes work in other communities--they get all the requirements, trends, and potential requests on the table before the applicant makes development and use location decisions that might not be optimal from a resource protection standpoint.

Environmental Analysis Review Process Research Findings

Many jurisdictions require an EA review process similar to Teton County's for development within designated critical wildlife habitat areas. However, there are a few key differences to note. Whereas Teton County's current LDRs state, "Depending on the magnitude and content of the application, it may be reviewed by any or all of the Plan Review Committee, as well as other County staff, and state and federal agencies," these jurisdictions *require* that all applications be reviewed by wildlife experts from a state or federal agency.

For example, in Summit County, Colorado, "The Planning Department shall refer development proposals affecting property in the Wildlife Habitat Overlay District to the District Wildlife Manager for Colorado Parks & Wildlife" (Summit County, p.24). Maine's Model Wildlife Friendly Ordinances provides language that requires development applicants consult with the Maine Department of Wildlife and Inland Fisheries (SCOTie.org).

Additionally, a report on recommended development review standards from Montana Fish, Wildlife and Parks (MFWP) advocates for a wildlife biologist to be brought into the conversation ***as early as possible***. It recommends that an applicant "work with natural resource professionals early in the process, ideally before designing the development." MFWP also recommends that those undertaking a subdivision:

Consult with local MFWP field biologists at the earliest stage of project planning. Other professionally trained biologists, of course, may also be consulted. The ideal time to consult with biologists is before selecting a site for subdivision development. The next best time for early consultation with biologists is during the pre-application process.

Environmental Analysis Review Process Summary & Recommendations

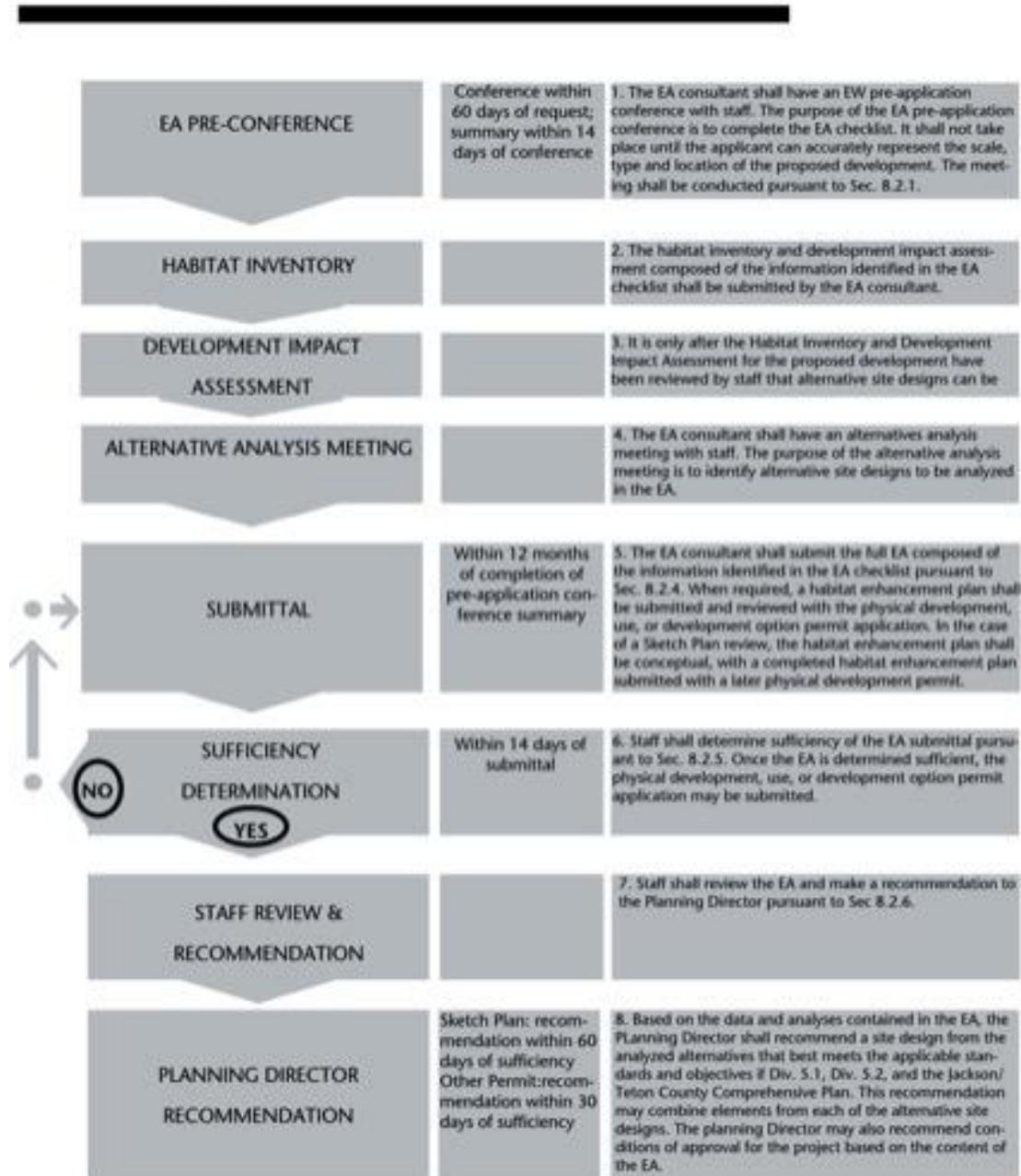
The current Environmental Analysis (EA) review process does not benefit from the expertise of a wildlife biologist on staff. If that is not added, per these recommendations, then the Town and County should provide the consultation of a wildlife or natural resource professional from a federal or state agency at the onset and throughout the EA.

When staff calls on the Plan Review Committee members to be involved in the review of an application, they should then be involved from the pre-application conference onward. It is necessary to have those with official comment and review authority (Plan Review Committee and staff and any outside agencies) set the standards, expectations, and any unwritten best practices from the onset of the pre-application process (so as not to cause surprises down the road) and to allow the applicant and the applicant's consultants to be thoroughly informed of the expectations and what the parameters are for site design.

Based on these findings, we recommend that the updated LDRs require the consultation of a wildlife biologist and/or natural resource professional from the PRC at the earliest stages of the EA review process, i.e. the pre-application conference. Additionally, the EA Review Process should be led by a wildlife biologist staff member of the Teton County Planning and Development Department, who informs every step of the process. Steps in the pre-application process should be modified, as noted above, such that the approved/accepted Habitat Inventory informs the site development, the Alternatives Analysis, and the Development Impact Assessment.

The following chart shows how the process should work:

Environmental Analysis: How it should work



Findings

Topic #2: Waterbody and Wetland Buffers

2.1. Change ‘stream’ definition, specifically the characteristics for flow level and habitat

- The definition for streams should include any natural channel, perennial or intermittent, that has flow at any time during the year.
- The current stream definition is too narrow and eliminates many streams that are important to overall watershed water quality, flora, fauna, and fish. Some smaller streams flow into spring-fed creeks that are cutthroat trout spawning habitat.
- Use Wyoming Department of Environmental Quality’s (DEQ) surface water classifications to update stream definitions and regulations.
- Existing regulations limit protection to streams that have an annual flow of three cubic feet per second (cfs) or greater, provide winter habitat for trumpeter swans, or serve as spawning areas for cutthroat trout. Smaller streams, with annual flow levels less than three cubic feet per second (cfs), should also be protected by setbacks.
- The Regional Wetlands Conservation Plan, put together by Wyoming Game and Fish and other agencies, calls for our Natural Resource Regulations to protect smaller, currently unprotected streams. A broader definition of protected waterbody is needed to include any natural channel, perennial or intermittent, that has flow any time during the year.

2.2. Increase all waterbody and wetland setbacks/buffers

Substantial scientific evidence and precedence from other jurisdictions, supports wider setback protection for all waterbodies.

- We recommend using Montana Fish, Wildlife & Park’s “Total Building Setback” model standard (discussed in research findings).
- Allow for a required increase in wetland and riparian setback based on site-specific circumstances, such as erosion history, historical evidence of channel meander, or irreplaceable wetland function.
- Require clear standards prohibiting disturbance to riparian plant communities in setback/buffers along waterbody and wetland edges.

2.3. Require setback standards for irrigation induced wetlands and irrigation induced riparian habitats

- Include irrigation-induced wetlands in the definition of wetland and apply setback protection standards to these wetlands.
- The Regional Wetlands Conservation Plan, by Wyoming Game and Fish and other agencies, calls for protection of irrigation-induced wetland and waterbody habitats.

2.4. Institute tiered classification and protection standards for wetlands and add wetlands to Natural Resource Overlay maps for protection

- Institute a ranking system that goes beyond existing ordinal ranking in Vegetative Cover Type Standards and ranks the importance and values of wetlands from high to low based on scientific criteria.
- Because natural wetland functions are extremely difficult for humans to successfully replicate, disturbance and mitigation of high quality wetlands should be strictly prohibited.

Waterbody and Wetland Buffers Background

The quoted purpose of protection standards for waterbodies and wetlands is as follows:

In order to protect the community as a whole from potential negative impacts caused by physical development and use that may affect these resources or their functions, this section prohibits physical development and use on and within a certain distance of these resources.

The definition for streams is:

Stream means a body of running water that is neither one of the identified rivers, nor an irrigation ditch, and has one or more of the following characteristics:

- Flow Level.** Has an average flow of 3 cfs. or greater including return water from sub irrigation practices.
- Habitat.** Provides a winter habitat for trumpeter swans or serves as a cutthroat trout spawning area.

The setbacks for waterbodies and wetlands required in the current regulations are:

All physical development and use is required to be setback from specified resources as follows:

- a. Rivers. 150 feet.
- b. Streams. Along streams physical development and use shall be located out of the riparian plant community, but in no case shall the required setback be less than 50 feet or more than 150 feet.

- c. Natural Lake/Pond. Adjacent to natural lakes or ponds, physical development and use shall be located out of the riparian plant community, but in no case shall the required setback be less than 50 feet or more than 150 feet.
- d. Wetlands. 30 feet.

Waterbody and Wetland Buffers Interview Findings

The unanimous opinion of those we interviewed was that the definition of a stream needs to be changed. The existing regulations only protect streams that have an annual flow of three cubic feet per second or greater, provide winter habitat for trumpeter swans, or serve as spawning areas for cutthroat trout. Too few streams fit into this category, leaving many streams and their riparian areas without any protections. Many smaller streams flow into spring-fed creeks that serve as cutthroat trout spawning habitat and therefore, should contribute to the overall health of that crucial habitat. Intermittent streams, or streams that flow for a portion of the year, provide valuable habitat for aquatic and terrestrial species, and the health of these streams affect the larger ecosystem of the water channels into which they flow. The definition for stream should include any natural channel, perennial or intermittent, that has flow at any time during the year.

It was strongly recommended that the Natural Resource Regulations use the definition for stream and other waterbodies from the Wyoming Surface Water Classification List provided by the Wyoming Department of Environmental Quality (DEQ). This will be discussed further in the Research Findings section below.

Another suggestion is expanding the definition of stream to all types of cutthroat trout habitats (winter, rearing, migratory, spawning, and connectivity to each habitat) in order to better protect that habitat. Indeed, all types of fish habitat, not just cutthroat trout, would benefit from expanding the definition of streams and requiring stream setback standards.

Runoff protection for streams with steep slopes that are NOT cutthroat trout spawning streams were also recommended for protection. The existing regulations only regulate the runoff of steep slopes on streams that are spawning areas. For the sake of water quality, the regulations should be expanded to protect non-spawning streams with steep slopes for water quality is mingled throughout the watersheds.

Generally, interviewees believe that more lineal miles of watercourse setbacks would be better for water quality. For example, GIS mapping and photos show how the course of the valley's rivers have changed over time, in some cases dramatically, such as areas of the Snake and Gros Ventre Rivers where 150 feet is not a sufficient setback to prevent structure loss or damage if the rivers flood and/or change course. The Snake River has had three 100-year floods in the past 15 years, so in addition to protecting resources, setbacks would also protect people. Rivers move inevitably, and it's prudent for development and uses to be more than 150 feet away to prevent flood losses.

Interviewees noted that although the existing setback standard for streams and natural lakes/ponds is between 50 - 150 feet, typically the 50 foot minimum is used. This sort of sliding scale could function better if the use of the wider setbacks is required when driven by site-specific features such as slope, erosion history or potential, historical evidence for river meander, irreplaceable wetland functions, etc.

While there was some debate as to whether “non-natural” human induced wetlands and riparian areas should be protected, overall interviewees responded affirmatively. These human induced resources provide valuable wildlife habitat to many species, and these waters impact the overall water quality and health of the aquatic ecosystem. It was noted that it’s difficult to make the distinction anymore because our natural waterways have become irrigation routes. For example, the Gros Ventre River has been diverted into Flat Creek and Spring Creek for irrigation purposes.

Adding a setback standard to irrigation ditches and irrigation-induced wetlands acknowledges the important habitat functions that these areas provide, regardless of how they were made. It also acknowledges that the water in these areas contributes to the overall water quality of the valley’s water channels and fish and wildlife habitat, and therefore, it makes sense to have protection standards.

The recognition that wetlands need to be assessed and categorized using science-based criteria was oft mentioned in the interviews. Criteria including (but not limited to) size, location, hydrological functions, wildlife habitat (existing and potential), and quality (intact, mature, pristine, healthy, degraded, disturbed), should be factored into categorizing wetlands. Resulting categories should rank wetlands as having high to low values. All wetlands should be mapped in the Natural Resources Overlay and should require an Environmental Assessment prior to development or use. High quality wetlands should be deemed irreplaceable and therefore disturbance should be prohibited/avoided. Only lower quality wetlands should ever be considered for anything other than ‘avoid’ in the avoid, minimize, mitigate impacts dictate contained in the Natural Resources Regulations.

Waterbody and Wetland Buffers Research Findings

The Department of Environmental Quality (DEQ) has been tasked by the Environmental Protection Agency (EPA) to uphold a high standard of protection for waters classified as Class 1 Waters. When a main river channel is classified as Class 1, all connected waters to that river, including streams, creeks, and irrigation ditches, fall within the Class 1 Waters Protection Standards. The Snake River and its connecting waters are listed as Class 1 Waters by the DEQ. Fish Creek, for example, is designated as Class 1 Water. Teton County’s Waterbody and Wetlands Standards should align with and uphold the EPA and the DEQ’s protection standards for our waters.

In April of 2015, Wyoming Game and Fish collaborated with other agencies to release a Regional Wetlands Conservation Plan. The report outlines threats to wetlands and gives

conservation strategies for the Snake River Valley wetland complex. Of note, rural residential development is categorized as being a high severity threat to wetlands. It reads, in part:

...ongoing pressures to develop residential areas constitute major threats to wetlands and riparian habitats on those lands. While federal and local regulations do protect most wetlands and require mitigation of impacts, irrigation-induced wetlands and some riparian areas adjacent to unprotected streams (without stream and wetland setbacks) are highly vulnerable. Such areas may be filled and cleared without mitigation (p.49)

This report also highlights problems associated with the existing stream definition:

Teton County's current Land Development Regulations (LDRs) do not protect streams and associated riparian areas with mean annual flows of less than 3 cfs, or those lacking wetlands above the High Water Mark (Teton County 1994). Past enforcement....has been potentially compromised due to lack of sufficient data and information to make a determination of stream flow. This has resulted in decisions causing potential loss of riparian areas to development (p.49)

This report goes on to discuss the identification and protection of existing high quality wetlands and riparian habitats and specific threats to them. It also recommends that consideration be given to protecting irrigation-induced wetlands and riparian habitats through the Natural Resources Regulations (pgs 50-51).

Montana Fish, Wildlife & Parks (MFWP) has compiled a set of recommendations for development review involving resources entitled 'Fish and Wildlife Recommendations for Subdivision Development in Montana.' Appendix C.1. acknowledges that waterbodies are "a limited element on the landscape (less than four percent of the state), yet they support the greatest concentration of wildlife species in Montana" (C-6).

In support of a broader definition of streams and riparian areas than Teton County Natural Resource Regulations, MFWP's Water Bodies Report defines water flow related to valued riparian areas:

Water flows associated with riparian areas can be perennial (all seasons of the year), intermittent (for several weeks or months per year), or ephemeral (only in response to precipitation events) (C-6)

The report also recognizes that these habitats merit the highest level of protection:

Riparian and wetland habitats associated with water bodies are considered a Montana Tier 1 ecosystem (ecosystems in greatest need of conservation) (C-8)

MFWP Water Bodies standards consist of three distances: a total building setback, a vegetated buffer, and the smaller building setback. The total building setback is the combination of the vegetated buffer and the building setback. See Appendix #5 of this paper for further description of the following recommended setbacks:

Rivers: A minimum of 250 feet of vegetated buffer plus 50 additional feet of building setback. Total building setback equals at least 300 feet from each side of a river.

Perennial Streams: A minimum of 150 feet of vegetated buffer plus 50 additional feet of building setback. Total building setback equals at least 200 feet from each side of a perennial stream.

Other Water Bodies: A minimum of 100 feet of vegetated buffer plus 30 additional feet of building setback. Total building setback equals at least 130 feet from the boundary of a wetland or pond, or the ordinary high-water mark of an intermittent stream, lake, or reservoir.

The MFWP Fish and Wildlife "Fish and Wildlife Recommendations for Subdivision Development in Montana" supports these setback recommendations with relevant scientific backing. A riparian buffer of 300 feet is the most common recommendation in scientific literature in order to protect fish and wildlife habitat. The building setback is designed to protect the size of the vegetated buffer from being reduced and degraded over time. Numerous studies cited in the report show that most vegetated buffers become altered and encroached upon and thus decrease in size. Adding a building setback (for the inevitable encroachments) of at least 50 feet in addition to the riparian setback can dramatically reduce negative disturbances to the vegetated buffer (C-12).

A summary of riparian setback widths in other jurisdictions can be found in Appendix #4 of this white paper, but a few highlights include: Chouteau County, Montana, with a 400 foot setback along the Missouri River; Lewis and Clark County, Montana, with a 250 foot setback along its major rivers and a 100-200 foot setback along its streams; Canmore, Alberta, with a 60 meter (197 foot) setback along the Bow River and a 66 foot setback to wetlands; Portland, Oregon, with a wetlands setback of 50 ft; and Washington State with a standard recommended riparian habitat area setback of 150-250 feet for streams.

Waterbody and Wetland Buffers Summary & Recommendations

There is substantial evidence to support updating and increasing the protection afforded to resources by Teton County’s waterbody and wetland standards to meet the vision of the Comprehensive Plan’s goal of Ecosystem Stewardship and to be on par with current best practices. Teton County’s waterbody and wetlands protections and setbacks should be increased to better protect overall water quality and riparian, fish and, wildlife habitat, as well as prevent flood losses. We highly recommend the three-distance “Total Building Setback” approach, as well as the setback widths, recommended by the Montana Fish, Wildlife and Parks report.

Our rivers, (the Snake, Hoback, Gros Ventre, and Buffalo rivers) fall almost entirely within the Natural Resources Overlay boundaries, and therefore are considered to be among the most sensitive natural areas needing the highest levels of protection. As such, clearer regulations prohibiting the disturbance, degradation, and loss of the riparian plant communities along these river corridors should exist. Currently, regulations don’t expressly prohibit such alterations to riparian plant communities.

The existing regulations only prohibit “physical development and use on and within a certain distance of these resources.” It is unclear if ‘use’ includes cutting vegetation along the rivers, and this ambiguity should be eliminated by prescriptive language in the code. A vegetative buffer, along with a building setback, as proposed by the Montana Fish Wildlife and Parks Report, would help protect riparian plant communities along river corridors.

Wetlands should have a tiered classification system that strictly prohibits disturbance of high quality wetlands. ‘High quality’ should be defined by science-based criteria that take into consideration the level at which the wetland is intact, undisturbed, and its level of functionality, among other considerations. The definition of a stream should be expanded so as to include many more streams and should follow the classification standards set by the DEQ. Irrigation induced wetlands and riparian habitat should be protected with setbacks as well.

Topic #3: Natural Resource Protection Zoning Overlay

3.1. Expand the Natural Resources Overlay to protect additional habitats and species “of concern”

Add at least the following species and habitats to overlay protection:

- All natural waterbodies
- Aquatic habitats
- Threatened, endangered, and candidate species from state and/or federal Endangered Species Act (ESA)
- Parturition (birthing) areas of major ungulates
- Sage grouse habitat
- Big horn sheep (winter range, parturition areas, and migration routes)
- Peregrine falcon nesting habitat

- River Corridors (as defined in Topic #2 of this report)
- Wetlands
- Cutthroat trout

An environmental assessment of the natural resources should be required any time a property has a natural waterbody or irrigation-induced waterbody.

3.2. Remove the non-objective language in Crucial Wildlife Protection Standards which reads “unless the applicant can demonstrate that it can be located in such a way that it will not detrimentally affect” crucial wildlife habitat

- The vague nature of this language invites a large range of interpretation, making protection inconsistent.
- This standard fails to give clear and measurable criteria and is too vague for the applicant to demonstrate compliance.

3.3. Add setback standards to buffer migration routes, crucial winter ranges, and daily movement patterns from development

- Setbacks provide clear, enforceable guidelines to avoid impacting crucial wildlife habitat, including daily movement patterns.
- The nesting and spawning areas of focal species are protected by setbacks; therefore, all crucial habitat should be protected by the same mechanism.
- The rationale for the width of setbacks should be based on science.
- Corridor setbacks should be used by many jurisdictions in the region.
- Protecting corridors for movement and preventing fragmentation reduces the cumulative effects of development, rather than just site-specific effects.

Natural Resource Protection Zoning Overlay Background

The purpose of the NRO standards is:

...to provide protection to the most important and sensitive natural areas throughout the Town and County that provide critical winter habitat and migration routes that are essential for survival of the elk, mule deer, moose, and trumpeter swans; nesting habitat that is essential to the survival of the bald eagle and trumpeter swan; spawning areas that are essential to the cutthroat trout; and the natural resources and biodiversity that support wildlife populations

The Crucial Habitat Protection Standards are part of the Natural Resource Overlay Standards and these Standards prohibit development in crucial habitat areas for focal species “*unless the applicant can demonstrate that it (development) can be located in such a way that it will not detrimentally affect*” the animal’s ability to survive. Although each section reads slightly differently, the Crucial Elk Winter Range standard illustrates the jest of the language of this section:

No physical development, use, development option, or subdivision shall occur on crucial elk winter range, unless the applicant can demonstrate that it can be located in such a way that it

will not detrimentally affect the food supply and/or cover provided by the crucial winter range to the elk, or detrimentally affect the potential for survival of the elk using the crucial winter range

Natural Resource Protection Zoning Overlay Interview Findings

Interviewees indicated that the scope of protection to designated habitats and species in the 1994 overlay was based on best science and mapping technology of the time, but it needs to be updated to take advantage of the advances made in science and mapping technology over the past twenty years. Updates are needed to reflect any changes to migration patterns and to utilize new data on additional habitats and species that have become more of a concern in the valley since 1994.

The following are examples of species and habitats that should be considered for inclusion into the overlay area: species from the Endangered Species Act (ESA), big horn sheep, sage grouse, peregrine falcon, Snake River watershed, riparian areas, parturition areas of major ungulates, and wetlands.

Habitats involving water, such as riparian areas and wetlands, were mentioned as the most critical of all habitats due to the numerous species that rely on these areas and their importance to overall water quality. Our location in the arid west makes water one of our most scarce resources, and therefore should be protected with our highest standards. It was suggested that aquatic habitats, including waterbodies, riparian, and wetlands, should be considered “ecological systems of concern.”

Wetlands are ranked as the highest priority in the existing Vegetative Cover Type Standards' ordinal ranking system, and as such, all wetlands should be included in the overlay. All riparian habitat, defined as riparian plant communities along the Snake, Gros Ventre, Hoback, and Buffalo Rivers, should be added to the Vegetative Cover Type Standards' ordinal ranking system and the overlay. These ideas will be discussed further in Topic #3, Vegetative Cover Type Standards, and Topic #4, General Environmental Standards (Waterbody and Wetland Buffers).

Crucial Habitat Protection Standards

We asked whether the Crucial Habitat Protection Standards (CHPS) adequately protect the critical habitat they aim to protect. The professionals who answered this question unanimously considered the language to be problematic. The standards are subjective and lack specifics on what evidence must be supplied to demonstrate compliance. It is inherently difficult to prove that one is not affecting the “potential for survival” of an animal. In addition, mere survival of an animal is too low a bar when our community vision calls for healthy, thriving animal populations. The standards need to provide clear, measurable, and science-based criteria if they are to provide the desired protection.

To eliminate varying interpretations and ensuing disagreements over how these standards should be applied, the burden of proof must be clearly defined within the standards. Noted again was the importance of involving a wildlife biologist from a state or federal agency, or from County Staff, at the earliest point in the planning process to avoid disagreements down the road.

Setback Standards

A suggested mechanism to provide enforceable standards is to require development setbacks from crucial migration routes and crucial winter ranges. The argument was made that the entire valley is essentially a migration corridor, and that the Natural Resources Regulations to protect these areas need to go further to prevent habitat fragmentation and preserve wildlife movement patterns. We should not only be evaluating impacts on a site specific basis, but rather taking into consideration the cumulative impacts to the larger habitat, migrations routes, corridors, and daily movement patterns. Setback standards may help reduce these impacts by preserving wildlife movement.

Natural Resource Protection Zoning Overlay Protection Research Findings

Similar to Teton County’s Natural Resources Zoning Overlay (NRO), many jurisdictions have established critical wildlife habitat overlay zones that list species and habitats of concern and require additional protection standards within these areas. Each jurisdiction’s ‘species of concern’ list varies depending on their ecosystem and particular history. In a 2008 report titled “Evaluation of the Natural Resource Overlay (NRO) in Teton County, Wyoming,” a joint effort by the Alliance and the Conservation Resource Center of Teton Science Schools, listed additional species and habitats of concern in Teton County based on interviews and conversations with biologists. The list of additional species and habitats from the 2008 report is included in this white paper as part of Topic 2.1 (above).

Research also revealed that it is common practice for wildlife habitat overlay protection standards in the US to prioritize habitat protection of any threatened, endangered, or candidate species from the Endangered Species Act (ESA). The majority of jurisdictions have implemented setback requirements to protect wildlife migration corridors and winter ranges. These setbacks often increase for habitat frequented by listed threatened and endangered species.

Setback Standards

As mentioned above, setback standards are an oft-used mechanism for the measurable protection of crucial wildlife habitat standards. A wide spectrum of setback widths are used in the jurisdictions we considered, ranging from 100 feet to one mile, even for the same resource or species. Pitkin County, Colorado's General Buffer Standards require a minimum ¼ mile (1320 ft.) buffer between any structure and wildlife migration corridor, severe winter range, or winter concentration areas, and any ungulate production areas (bighorn sheep, mule deer, and elk). If the lot size is too small to accommodate these requirements, buffers will be applied to the maximum extent possible.

A report by Montana Fish, Wildlife and Parks (MFWP) titled "Big Game Winter Range," cites substantial evidence on the impacts of development on ungulates and gives recommended standards based on this evidence. One such recommendation states:

Provide or maintain linkage within a winter range patch, between isolated patches of winter range, or between summer range (or other seasonal habitat) and winter range. Recommended linkage widths are a minimum of one (1) mile for elk and one-half (½) mile for other species. For white-tailed deer, mule deer, and moose, linkage should be along riparian corridors where present.

Restricted Land Use Districts

An alternative mechanism to setbacks is limiting human use in critical areas by establishing restricted land use districts/zones/overlay zones to ensure protection of wildlife corridors and habitat. Canmore, Alberta, established specific land use zones, strictly limiting permitted uses to wildlife corridors, wildlife habitat, vegetation management, and some low-impact recreational and educational uses. The purpose of Canmore's Wildlands Conservation (WC) District and the Natural Park (NP) District is to protect existing open spaces, which are primarily in a natural condition, for the purpose of wildlife movement areas, scientific research of natural ecosystems, environmental education, and trails for non-motorized use. Pre-existing developments in these districts have strict regulations limiting any changes that can be made.

Portland, Oregon, has two tiers of environmental overlay zones: the Environmental Protection Overlay Zone (P-Zone) and the Environmental Conservation Overlay Zone (C-Zone). The P-Zone strictly limits development, providing the highest level of protection to the most significant and sensitive natural resources. Development is allowed in the P-Zone only in very limited circumstances. The C-Zone is intended to prevent harm to natural resources while allowing environmentally sensitive development. New development in the C-Zone must meet standards designed to avoid, minimize, or mitigate adverse impacts on identified natural resource values and functions.

Conclusion

The Teton County Natural Resource Overlay zone should be updated using the newest science and technology available. Consideration should be given to expanding NRO protection to include additional ecological systems, and species and habitats "of concern," including additional threatened and endangered species. We recommend that the vague language in the

NRO Crucial Habitat Protection Standards be eliminated and replaced with clear and measureable setback standards. Nesting and spawning areas of NRO protected focal species are already being protected by setbacks; it makes sense to protect all of the crucial habitat of the NRO protected species by the same mechanism. Furthermore, we highly recommend that readers reference the scientific evidence given in the Big Game Winter Range report by Montana Fish, Wildlife and Parks when considering appropriate setback widths.

Districts such as the Wildlands Conservation and National Park districts of Canmore, and particularly the P-Zone in Portland, are inspirational models for how development can be strictly limited in certain areas to allow for wildlife movement corridors and habitat protection. However, setback standards are perhaps a less prohibitive mechanism that allows for some development in sensitive areas while maintaining natural wildlife movement corridors and crucial winter habitats (as opposed to districts which don't permit development).

Natural Resource Protection Zoning Overlay Summary & Recommendations

The NRO should be updated using the newest science and technology available. The purpose statement, as written, needs to be expanded to include additional species and habitats “of concern,” including threatened, endangered, and candidate species listed with the ESA. The NRO purpose statement also needs to be revised because it is too minimal in its scope of protection; it needs to be expanded to achieve the Comprehensive Plan’s goals.

Additionally, from a user’s perspective, it is often unclear what areas are covered by the NRO. For example, it is not expressly written in the NRO standards that almost all sections of the main rivers in Teton County are within the NRO. Without looking at a map, one would not know the scope of coverage of the NRO.

We recommend that the non-objective language in the NRO Crucial Habitat Protection Standards be eliminated and replaced with setback standards. Nesting and spawning areas of NRO focal species are already being protected by setbacks; it makes sense to protect all crucial habitat of the NRO by the same mechanism. Furthermore, we highly recommend that readers reference the scientific evidence given in the Big Game Winter Range report by the MFWP when considering appropriate setback widths.

Districts such as the WC and NP districts of Canmore, and particularly the P-Zone in Portland, are inspirational models for how development can be strictly limited in certain areas to allow for wildlife movement corridors and habitat. However, setback standards are perhaps a less prohibitive mechanism that allows for development in sensitive areas while maintaining natural wildlife movement corridors and crucial winter habitats.

Topic #4: Vegetative Cover Type Standards (Div.5.2.1.F)

4.1. Re-title “Vegetative Cover Type Standards” to “Habitat Type Standards”

- “Habitat Type Standards” allows for terrestrial *and* aquatic habitat types to be ranked.

4.2. Include the five categories of ‘Waterbodies’ in the ordinal ranking standards

- Five categories of ‘Waterbodies’ as defined in (Div.5.1.1.C.1.a.-e.), except “b.i-ii.Stream,” which needs to first be re-defined (see Topic #2 of this white paper for Stream definition recommendations).
- Wetlands is the only category of the five in ‘Waterbodies’ included in existing ordinal ranking standards.
- Water is the most fundamental resource to life, vital to the wellbeing of numerous species.
- Waterbodies should be classified as an “ecological system of concern” in need of a high ordinal ranking of protection.

4.3. Categorize habitat type based on its importance to wildlife, *and* its ability to be replaced or restored, with some habitats deemed irreplaceable

- Consult the definitions in “Categories of Crucial Habitat Conservation” from Western Governor’s Wildlife Council’s white paper as a model for crucial habitat categories.

4.4. Rank all native vegetative cover types higher than agricultural lands

- Xeric grasslands (nonmesic, grassland) are currently valued at lowest priority; lower than agricultural meadow.

Vegetative Cover Type Standards Background

The purpose of the existing Vegetative Cover Type Standards (Div.5.2.1.F.1.) is “to establish a mechanism for protecting vegetative cover types. Vegetative cover types are divided into subcategories and shall be protected according to their importance to wildlife and its survival.” The Design Guidelines (Div.5.2.1.F.4) state that a property proposed for development “that contains resources identified by this Section shall be designed to protect as many of the identified resources as possible.”

The Ordinal Ranking (Div.5.2.1.F.4.a) for the protection of vegetative cover types states that “an ordinal ranking number is given for each group of resources, 10 being the highest, or most important, 1 being the lowest, or least important.” In the existing ordinal ranking system, Forested, Scrub-Shrub, and Emergent wetlands are ranked as the highest priorities (priority numbers 10 and 9). Of the five categories of Waterbodies defined in the General Environmental Standards, wetlands are the only vegetative cover type included in the ordinal ranking standards.

Vegetative Cover Type Standards Interview Findings

Since the purpose of these standards is to protect vegetative cover types “according to their importance to wildlife and its survival”, these regulations are essentially ranking habitat types by resources. Perhaps re-titling these standards to point out their purpose as habitat types would be more inclusive. Currently, wetlands are ranked, but Waterbodies (including rivers, streams, natural Lakes/ponds, and riparian plant communities) are not ranked.

Although the sentiment was echoed that ranking the importance of vegetative cover types is inherently problematic, the necessity to do so for the sake of protection standards was equally acknowledged. The overall feeling is that if a value system must be used, then it makes sense to rank our most finite resources as the highest priorities for protection. Waterbodies are our most finite resources, and as such, should be represented in the ordinal ranking system. Another important consideration is the level of difficulty to restore or replace a cover type; the harder it is to restore or replace, the higher the ranking should be. A mechanism should be in place so that some habitat types (wetlands) are deemed “irreplaceable” and therefore any disturbance prohibited.

Also noted was that all native vegetation should be ranked higher than agricultural lands that have essentially been disturbed and altered. Currently, Xeric grasslands (nonmesic, grassland) are valued at lowest priority (priority 1); lower than agricultural meadow (priority 2). The overall desire is to have regulations that maintain as much native vegetation intact as possible, with the least amount of disturbance.

Vegetative Cover Type Standards Research Findings

Assessing the ability to restore or replace a habitat type as a ranking criteria is a recommended practice. The white paper from the Western Governor’s Wildlife Council provides direction for the difficult task of defining categories for crucial habitat conservation. It separates habitats into three categories, 1 being the most fragile, and 3 being the easiest to restore or replace. Category 1 reads:

Aquatic or terrestrial habitats, including wildlife corridors that are rare or fragile and are essential to achieving and/or maintaining wildlife species viability or exceptional diversity. The habitat contains a unique combination of location or composition or complexity of the habitat or corridor which cannot be duplicated, and is therefore considered irreplaceable (Western Governor’s p.7)

In Category 2, “Restoration or replacement is difficult, or may be possible only in the very long term.” In Category 3, “Impacts can be minimized or reduced, and habitat or corridors restored or replaced by utilizing appropriate best management practices” (Western Governor’s p.7). This report offers a Critical Habitat Assessment Tool (CHAT) for western states that helps identify and classify tiers of habitat using layers of data (Western Governor’s p.3).

In the Alliance’s 2008 report, “Evaluation of the Natural Resource Overlay (NRO) in Teton County, Wyoming”, it is noted that:

The current NRO does not “weight” species of concern or their habitat in ecological terms (sensitivity or vulnerability), making it difficult to understand the true importance of specific areas. For example, the current NRO appears to greatly underestimate the importance of the Snake River corridor to numerous species.

Vegetative Cover Type Standards Summary & Recommendations

The Vegetative Cover Type Standards’ ranking system should be re-titled to better reflect its function as a mechanism for protecting habitat types for wildlife. Waterbodies, as defined in (Div.5.1.1.C.1.a.-e.), which includes rivers, streams, natural lakes/ponds, riparian plant communities, and wetlands, should be added as habitat types needing high priority ranking (only wetlands are ranked in the existing standards). However, the definition for streams needs to be changed, as per the discussion in Topic #2 of this white paper.

All native vegetation cover types should rank higher than agricultural lands. Any habitat ranking system that is used for protection standards should take into account the level of difficulty involved to replace or restore a habitat, with some habitats being deemed irreplaceable due to their fragility, rarity, and inability to restore or replace. The data and subsequent recommendations offered by the Western Governor’s Wildlife Council’s white paper, as well as the Alliance’s 2008 evaluation of the NRO, should be referenced and taken into consideration when updating the NRO and habitat type standards.

Appendices

Appendix A

Next Steps/Items for Further Research

1. Prioritize the completion of the Water Quality section in the General Environmental Standards

This was called out in the post 2012 Jackson/Teton County Comprehensive Plan as a high priority LDR update. Considering the importance of water to wildlife and humans, particularly in the arid west and in light of global warming, we think this is the next important piece that needs to be updated, and there is much room for improvement and many items left unaddressed in the current standards. This is urgently needed.

2. Prioritize better enforcement of all Natural Resource Provisions

This entails political will, assigning adequate staff resources, and following through on permits compliance and field inspections. This is currently on a complaint basis, and because wildlife can't talk, we need the enforcers to do the fieldwork for them and not rely on citizen complaints.

3. Update Resource Definitions section with clearer definitions for all habitat terms

This should happen as part of the Natural Resources Regulations update.

4. Update pond regulations in the County regulations

- a. Prohibit outflow from man-made ponds/streams to natural waterways.
- b. Consider incentivizing trumpeter swan habitat when creating ponds.
- c. Consider not allowing pond creation, as they are a wildlife hazard because aerators keep the ice soft and Moose and other ungulates can drown.

5. Update the Bear Conflict Area Standards

- a. Add Snow King and parts of East Jackson to Conflict Priority Area 1.
- b. Prohibit fruit-bearing trees in Conflict Priority Area 1 (CPA1) and areas within building envelopes in CPA1 areas.
- c. Reference bear standards in Pitkin County, Colorado.
- d. See interview responses in Appendix #3 for further suggestions.

6. Update the Domestic Pet Standards

- a. Remove language that allows dogs and cats to be “accompanied by a person who has strict voice control over the animal at all times.” This is ineffective and unenforceable, so leashes must be required.

- b. Use Pitkin County, Colorado, setback standards: “Dogs shall be kenneled within 50 feet of the residential buildings or leashed under human supervision when outside a required kennel within ¼ mile (1320 feet) of migration corridors and within or adjacent to migration patterns, transition range, or highway crossings.” Predation: If the County determines that one or more wildlife species on or near the property are subject to predation by domestic animals, including dogs and cats, the County may impose additional standards to reduce or eliminate such predation.” (Pitkin County Land Use Code, Chapter 7, page 57)
- c. Invisible electric fences aren’t sufficient, as they don't prevent wildlife ingress or pet egress.
- d. See Interview responses in Appendix #3 for further suggestions.

Appendix B

References

Successful Communities Online Toolkit (SCOTie.org)

(Larimer County, Co; Maine; Henderson, NV; Park City, UT; Boulder, CO.)

http://www.scotie.org/index.php?option=com_content&view=category&layout=blog&id=6&Itemid=13

Wyoming Surface Water Quality Standards (DEQ)

<http://soswy.state.wy.us/Rules/RULES/9176.pdf>

Wyoming Surface Water Classifications List (DEQ)

<http://pbadupws.nrc.gov/docs/ML1301/ML13016A388.pdf>

EA Process Recommendation (MFWP)

<http://fwp.mt.gov/fishAndWildlife/livingWithWildlife/buildingWithWildlife/>

Summit County Land Use and Development Code

CHAPTER 4: Zoning Regulations/Overlay Districts

<http://www.co.summit.co.us/DocumentCenter/Home/View/59>

Montana Fish, Wildlife and Parks' Recommendations for Subdivision Development in Montana (Appendix C)

<http://fwp.mt.gov/fishAndWildlife/livingWithWildlife/buildingWithWildlife/subdivisionRecommendations/documents.html>

Teton County Land Development Regulations

<http://www.tetonwyo.org/compplan/LDRUpdate/CurrentCountyLDRs.pdf>

Evaluation of the Natural Resource Overlay (NRO) in Teton County, Wyoming

http://www.jhalliance.org/Library/Reports/NROmapreport_4-08.pdf

Western Governors' Wildlife Council White Paper -Version III

Western Wildlife Crucial Habitat Assessment Tool (CHAT): Vision, Definitions and Guidance for State Systems and Regional Viewer

http://www.adfg.alaska.gov/static/lands/maps_gis/chat/pdfs/wgwc_whitepaper_final.pdf

WY Game and Fish Department's Snake River Valley (Jackson) Wetland Complex

Regional Wetlands Conservation Plan

Protecting the wildlife, wild places, and community character of Jackson Hole. 28

685 S. Cache St. • P.O. Box 2728 • Jackson, WY 83001 • (307) 733-9417 • info@jhalliance.org • JHalliance.org

<https://wgfd.wyo.gov/WGFD/media/content/PDF/Habitat/Habitat%20Information/Wyoming%20Wetlands%20Conservation%20Strategy/Snake-River-Valley-Wetland-Complex.pdf>

Management Recommendations for Washington's Priority Habitats: Riparian

<http://wdfw.wa.gov/publications/00029/>

Town of Canmore, Alberta Land Use Bylaws (Section 4)

http://www.canmore.ca/index.php?option=com_docman&task=cat_view&gid=344&Itemid=

Portland, Oregon's Title 33 Planning and Zoning

<https://www.portlandoregon.gov/bps/31612>

Lewis and Clark County Waterway Setbacks

www.co.lewis-clark.mt.us/departments/communitydevelopment-planning/subdivision-regulation.html

Ft. Collins, CO Land Use Code

<http://www.colocode.com/ftcollins/landuse/article3.htm>

Pitkin County, CO Land Use Code

<http://www.pitkincounty.com/DocumentCenter/View/3470>

Use of Building Setbacks in the Water Body Standards of the Fish and Wildlife

Recommendations for Subdivision Development in Montana: Justification and Rationale

Clancy, C.G., M.A. Deleray, and S.T. Opitz. 2012.

Use of Building Setbacks in the Water Body Standards of the Fish and Wildlife

Recommendations for Subdivision Development in Montana: Justification and Rationale

Montana Fish, Wildlife & Parks Professional Paper, January 9, 2012.

Appendix C

List of Stakeholder Interviewees

We would like to thank everyone who participated in these interviews for their valuable contribution to this project. Interviews took place during June and July of 2015. The scope of each interview varied depending on the person's area of expertise.

- **Scott Pierson**, Principal, Pierson Land Works
- **Brian Remlinger**, Principal and Senior Scientist, Alder Environmental
- **Carlin Girard**, Water Resource Specialist, Teton Conservation District
- **Robb Sgroi**, Land Resources Specialist, Teton Conservation District
- **Susan Patla**, Nongame Biologist, Wyoming Game and Fish Department
- **Mark Daluge**, Landowner Program Coordinator, Teton Weed and Pest
- **Susan Johnson**, Planning Manager, Teton County Planning and Development Department
- **Roby Hurley**, Principal Planner, Teton County Planning and Development Department

APPENDIX D

Interview Questions -- Natural Resource LDRs

NRO Standards:

1. **“Focal Species”/Habitat:** Our current Natural Resource Overlay standards list our focal species and critical habitats for elk, mule deer, moose, bald eagles, trumpeter swans, and cutthroat trout.
Question: What is working well with these current protection standards?
2. **Trumpeter Swans:** Our standards for trumpeter swans prohibit development and use within a radius of 300 feet from a nest and prohibit development within swan winter habitat unless applicant can demonstrate that it will not detrimentally impact the swan’s survival.
Questions: Do you think these standards are adequately protecting trumpeter swans? Is there any change you would make to these standards?
3. **Bald Eagles:** Our standards for bald eagles prohibit development and use within a radius of 660 feet from a visible nest or 330 feet if the nest is not visible or if the applicant can prove that 660 feet is not practical. Standard also prohibits development within swan winter habitat unless applicant can demonstrate that it will not detrimentally impact the eagle’s survival.
Questions: Do you think these standards are adequately protecting bald eagles? Is there any change you would make to these standards?
4. **Cutthroat Trout Spawning Areas:** Our standards for cutthroat trout prohibit development and use within 150 feet from cutthroat trout spawning areas, unless applicant can demonstrate that it will not cause run-off or have detrimental effect on water quality and cause no disturbance to any functions to the survival of trout.
Questions: Do you think these standards are adequately protecting cutthroat trout? Is there any change you would make to these standards?

Critical Habitat Protection Standards

1. **Critical habitat protection standards:** The critical habitat protection standards state that no physical development shall occur within crucial migration routes or crucial winter range for elk, mule deer and moose, unless the applicant can demonstrate that it can be located in such a way that it will not detrimentally affect the ability of the animal to survive.
Questions: Do you think this language is sufficient to protect and limit development in critical habitat areas? What, if anything, could strengthen these standards?

2. **Buffers for migration routes and critical habitat:** Some communities have standards that buffer development from critical wildlife movement corridors and habitat areas.
Question: Could buffers like these strengthen our critical habitat protection standards?
3. **Connectivity:** To provide for daily wildlife movement (different from seasonal migration) some communities have standards to ensure that natural areas connect to one another.
Question: Do you think we should have connectivity standards that provide for and protect daily wildlife movement?

Vegetative Cover Type Standards

1. **Questions:** Do you think that our ordinal ranking system does a good job of protecting wildlife habitat? What else can we be doing to protect vegetative cover that provides critical wildlife habitat?

Waterbody and Wetland Buffers

1. **Flow level:** In our General Environmental Standards, a stream is defined as having an average annual flow of 3 cubic feet per second (cfs) or greater.
Question: What is your thought on this way of defining streams?
2. **Wetlands:** In our General Environmental Standards, the setback for wetlands is 30 feet.
Questions: Do you think this setback is adequate? Would you recommend any changes?
3. **Streams, natural lakes/ponds:** The required setback from streams, natural lakes and ponds is no less than 50 feet and no greater than 150 feet.
Questions: Do you think this setback is adequate? Would you recommend any changes?
4. **Rivers:** Setback is 150 Feet from the Snake, Gros Ventre, Hoback, and Buffalo rivers.
Questions: Do you think this setback is adequate? Would you recommend any changes? Do you think we should be protecting irrigation-induced wetlands? What about irrigation ditches? Is there anything else you think we could/should be doing to protect our waterbodies, wetlands, and riparian communities?

Mitigation/Habitat Enhancement:

1. Our standards require a 2:1 ratio for mitigation/habitat enhancement (two acres of mitigation/enhancement for every one acre of land impact). On and off site methods are in order of priority, with on-site, in-kind being the preferred method.

Questions: Do you think 2:1 mitigation ratio is adequate? Do you have any recommendations for how this standard could be different? Why?

Environmental Analysis (EA) Process:

1. **Questions:** What is good about our EA process? What, if anything, could be better? Are the recommended protections being applied, and are they actually protecting what they set out to protect?

Domestic Pets (NRO Standard):

1. In the NRO, domestic pets (especially dogs) shall be physically restrained (leashed, chained, fenced) or accompanied by a person who has strict voice control over the animal at all times and are not allowed to roam unaccompanied in the NRO.

Question: Do you think these standards adequately protect wildlife from the threat of being killed, injured, or chased by domestic pets?

Bear Conflict Area Standards:

1. To prevent and mitigate conflict between humans and bears, Teton County has established risk levels through Conflict Priority Areas (CPA's). CPA 1 is high to moderate bear use area and has bear-resistant standards regarding garbage, bird feeders, and buildings. CPA 2, or low use areas, has no standards.

Questions: Do you think the bear resistant standards for CPA 1 areas are adequate? Any changes/additions?

Anything else?: Do you have any further recommendations for best practices or changes to our existing regulations that we haven't yet covered?

Appendix E

Interview Responses

Critical Habitat Protection Standards

- Current language is too subjective.
- Regulations do a good job of protecting highest value resources.
- County staff should internally make decisions without relying on 3rd party review committee.
- Wildlife biologist is needed on County Planning and Development Staff.
- NRO regulations were groundbreaking in 1994.
- Maps need updating to reflect changes in migration patterns and more species.
- Updated NRO will be tiered—unsure how that will impact regulations.
- Language in regulations regarding ‘survival’ of animals is problematic- goal should be biological integrity of the species, ability to reproduce, etc.

Migration Routes and Connectivity

- Current regulations protecting migration routes from development are not enforced, not enforceable, and not effective. They should either be removed or enforced.
- NRTAB/Biota is working on issues of corridors and connectivity; hopefully this will lead to protection of these areas.
- Set thresholds for allowable reduction of habitat for some areas.
- A threshold is needed to determine when an area becomes high priority.
- Migration corridor buffers could strengthen wildlife populations, and there are grounds for limiting development in these areas.
- Elk migration corridors to feed grounds should be managed somehow; it is important to enable that passage.
- Assess the functionality of an area rather than assigning a specific width setback to a migration route.
- We need cause and effect science to shed light on wildlife trends rather than anecdotal stories.
- Habitat loss needs to be discussed on a larger ecosystem scale.
- Endangered/threatened species need protection on private lands; add them to NRO species and habitat list.
- Connectivity for daily movement is important.
- Plan for wildlife crossings at movement hotspots.
- Link connectivity areas to water setbacks in standards.
- Enforcing good stream setbacks allows for riparian movement corridors in a very positive way.

Vegetative Cover Type Standards

- Ordinal ranking system is problematic because animals need varied habitat; it is hard to say that one area is more important than another.
- Trade one habitat for another.
- Current ordinal ranking system is a good starting place.
- Sage grouse is very important.
- Some habitat is more difficult to restore than others.
- Minimize disturbance at all costs.
- Minimize introduced landscapes.
- Keep native habitat as much as possible.
- Prioritize weed abatement by how much there is and where they are.
- Higher priority areas should have tighter restrictions on building envelopes.
- The current high value of wetlands means that sagebrush and other habitats being used to mitigate and replace wetlands are done so at twice the rate (2:1).
- Vegetation along streams very important to consider as we update LDRs.
- If we must use a value system, look at what resource is most scarce and most used by animals.
- In the arid west, riparian areas are needed by 80% or more of wildlife, therefore they have the highest 'value.'

Waterbody and Wetland Buffers

Annual flow level of 3cfs for stream definition

- This should be changed.
- It is not logical methodology.
- Flow should not govern our level of protection; need for protection should govern the level of protection.
- A better way to define a stream: Any natural channel that has flow at any time during the year.
- Setbacks should apply to smaller and intermittently running streams (natural channels).
- Definition doesn't address protection to smaller streams and irrigation ditches that flow directly into sensitive streams of high priority for conservation.
- Ephemeral waterbodies have high habitat value.
- If we protect all streams (regardless of annual cfs) that would help protect stream connectivity to spawning areas and other types of habitats (winter, rearing, migratory).
- We should use DEQ classification system; Snake River is a Class 1 DEQ river, and as such has high protection standards from DEQ/EPA.

Wetland Setback (30 feet)

- LDRs need to clearly define terms such as “high quality,” “degraded,” “irrigation-induced,” etc. so that there is no uncertainty as to what it is, how it got the definition, and how to regulate it.
- 30 foot setback is more than sufficient to protect soils, vegetation, and most species that depend on wetlands.
- Wetland size difference should be addressed in regulations.
- We should have tiered levels of protection for wetland setbacks.
- Some wetlands cannot be remade, and have irreplaceable functions.
- High value wetlands should be avoided; development should be forced out of these areas.
- High value wetlands should be mitigated at a higher rate (such as 4:1).
- More setback is always better!
- Mapping high quality wetlands in county is a good next step to the mapping recently done in the Wetlands Conservation Plan; Teton Conservation District or Ducks Unlimited have funding to do such research.
- We could maybe use Army Corps of Engineers standards.
- We should have something in the regulations requiring upland-to-upland crossing of wetlands.
- Language such as “all practical measures” and “necessary site” is very hard to regulate.
- Term “essential functions” needs to be defined better.

Streams, Natural Lakes/Ponds Setbacks (50-150 feet)

- Current setbacks are a good buffer for hydrological functions.
- Even though setbacks can go up to 150 feet, the 50-foot min is applied all the time.
- Once a home is built out and vegetated, runoff does not have a negative impact.
- Steep slopes on NON-spawning streams have no regulations for runoff protection; only slopes on streams that are spawning have runoff regulations in NRO.
- We need criteria for determining the setback between 50 and 150 feet; currently it is all or nothing depending on reproducing wildlife.
- Subdivision platting to protect large swaths of stream banks is an excellent way to protect waterways.
- Using DEQ stream classifications could help us protect waterways that we are required by regulation to protect.
- We need to explicitly prohibit outlets from man-made waterbodies into natural waterways.

River Setbacks (150 Feet)

- Setback should be expanded.
- GIS pictures show how much our rivers have changed over the years—we need way more than 150 feet in many areas.
- We have had three 100-year floods in the past 15 years.
- Levees are changing the whole dynamic of the river bottom and riparian ecology.
- 150-foot setback is adequate.
- Floodplain would trump this setback anyway.
- The setback mostly keeps people out of trouble; rivers move eventually, and it is best to be 150 feet away.
- Setback is at times sufficient.
- River setback should be increased for areas prone to erosion.
- For areas that are not currently developed, we should maintain as high a setback as possible.
- We should regulate waterways that have direct connectivity to spawning streams.
- Habitat enhancement projects should be required to meet certain criteria, like maximum setbacks.

Q: Should we be protecting irrigation-induced wetlands?

- People have mixed feelings on this; it is a tricky issue.
- If wetlands are anthropogenic made, then no; if they are not naturally functioning, then no.
- We might actually lose wetlands by regulating this; people might just turn off irrigation and let the land go dry in order to develop without being required to mitigate.
- It depends on if the goal is water conservation or wildlife habitat.
- This is a huge, important question.
- Yes, we should protect them; they often have a lot of habitat value.
- We should also encourage traditional flood irrigation rather than center point irrigation.
- At this point, our natural streams have become irrigation routes. The Gros Ventre River has been diverted into Flat Creek and Spring Creek for irrigation purposes.
- Currently our water rights are, “lose it or use it.”
- The Gros Ventre River completely dries up because of people exercising their water rights. This is not good for fish habitat.
- We should have county in-stream flow regulations that allow people to leave their water rights in the river without losing their water rights.
- There should be some way to prioritize water remaining in its natal stream.
- How does one come up with the definition for “irrigation-induced”? Clear definitions are needed.
- We should protect irrigation ditches that flow directly into spawning streams.

Mitigation Standards (Wetland & Other)

- Often native vegetation is disturbed to make room for an on-site mitigation project.
- We need options for meaningful contributions somewhere off site.
- On-Site priority often doesn't lead to any quality habitat being made.
- There should be a minimum threshold without having to mitigate.
- There should be a mitigation fund to acquire conservation easements for larger mitigation projects (banking).
- Standards should be adequate and based on a good principle.
- At times mitigation standards compromise habitat heterogeneity, because it always means the loss of some 'lesser value' habitat type.
- It means more human control and manipulation; we cannot always judge what is most important.
- It can be detrimental in some cases.
- Mitigation banking should be run by a private entity, and not county created.
- Find a property with a conservation easement that has been shown to be viable for wetlands with minimal work; it could be a good banking site.
- Even though man-made wetlands are not always best, sometimes big banks on the correct land for a project can have higher habitat value than a smaller mitigation on-site where it is not exactly functional.
- Mitigation should be staggered (tiered) to reflect high value to low value wetlands.
- High value should be mitigated at a higher rate (such as 4:1).
- Instead of just exchanging like habitats for like habitats, mitigation should allow exchanging different habitat types.
- For example: If you have a lower value wetland, and can't re-create an on-site, in-kind wetland, you could allow for sagebrush replanting for agriculture lands reparations instead of requiring the mitigation to be a wetland.
- Re-creating wetlands fails to some degree everywhere; it is hard to re-create what nature made.
- A 2:1 mitigation total with 1:1 being on-site, and 1:1 being off-site is a great idea.
- Often on-site mitigation results in low-functioning wetlands because the land is not well suited for wetlands creation.
- If we're going to create wetlands, we should deliberately create swan habitat; currently we are not thinking of swan habitat when making ponds.
- WYDOT does a horrible job at mitigating; someone else should do their mitigation for them.
- I am skeptical of wetlands function being re-created successfully.

- Banking on conservation easement land may create a hardship for Land Trust or landowner where mitigation banking will take place.

Environmental Analysis (EA) Process

- The EA process is good because it provides landowners, contractors, and planners a document that is aimed at understanding potential natural resource issues.
- Having the same consultant complete the EA who is responsible for the project implementation is a slight conflict of interest.
- We should bring in Teton Conservation District (TCD) and WY Game and Fish as early as possible, before the applicant spends significant time and investment in planning and design.
- Review natural resources on a property FIRST, before the application submitted. It is better to have a review PRIOR to designing.
- Currently there is a pre-application process, but it doesn't include natural resource perspectives.
- TCD and Game & Fish act as a review committee for County staff; the County sends EA applications to them so that they can review plans, comment on whether they conform, and make recommendations.
- The County should rely on them selves to review and make opinions/decisions.
- It often takes a long time for the review committee to complete the review of EA applications.
- The process order of operations is a bit backwards; you should assess natural resources first, and then apply for what you want.
- Requiring alternatives analysis sometimes adds a red herring. Often the first idea is better than alternative analysis.

Domestic Pets (NRO Standards)

- These regulations are totally unenforceable.
- Moose populations are in decline.
- We should have deed restrictions in CC&R's for future developments in moose habitat that prohibit dogs.
- Or, we should restrict to one dog per household and no outdoor cat, in these areas.
- We should inform and educate, not regulate.
- Culture change is needed around the way people think about their pets and wildlife.

Bear Conflict Area Standards

- Area should be expanded into town (add Snow King and parts of East Jackson) as bear conflicts have increased in recent years.

- Latches break on garbage lids.
- One garbage company charges more for the latching cans, while the other company doesn't charge more.
- Latching cans are heavy and hard for people to get to the curb in winter; it is hard for the elderly.
- Bears sleep in winter-- perhaps regulations on bear cans can be seasonal?
- Are people informed that they are in CPA 1 when they purchase a property?
- It is hard to find Conflict Area maps.
- There should be a way for a property owner to plug his/her address into a site and see if they are in a conflict area.
- These regulations are good but not enforced; there is soft enforcement and public outreach.
- Standards need to go a step further; permit to allow fruit bearing trees.

Focal Species Standards (NRO)

Trumpeter Swans

- If developing new habitat, setbacks should be farther than 300 feet, but it also depends on vegetative cover.
- 8-12 acres is the minimum needed to support nesting swans.
- Swan habitat takes a good-sized pond.
- If we are going to create wetlands, we should create swan habitat; we are not currently doing that when we create ponds.
- Regulations protecting swans are not worded well; there is no real guidance and it is too vague.

Bald Eagles

- Current standards are the national standards for bald eagles.
- Current setbacks have worked OK here, so far.
- Eagles are getting lead poisoning from lead bullets in kill piles, so we should require steel bullets everywhere in Wyoming.

Cutthroat Trout

- Outflow from man-made to natural waterways should be prohibited.
- Regulations are not worded well; there is no real guidance and they are too vague.
- Standards are NOT adequate.
- Fisheries migration routes are not mentioned in regulations, yet spawning areas are highlighted extensively—this is an oversight.

- New LDR revisions should acknowledge the link between spawning habitat and the need for fish to have access to these areas.
- **Should be protecting cutthroat habitat in several ways:**
 - Do not allow direct discharge of water features.
 - Limit the use of certain pond and landscaping chemicals on areas with direct connectivity to spawning areas.
 - Limit the time back hoes are allowed in stream channels during aquatic habitat enhancement projects (make sure fish have refuge from construction in streams).
 - Protect stream connectivity.
 - Grant setback exemptions only by need.
 - Encourage the protection of all types of habitats (winter, rearing, migratory, spawning).
 - Encourage the protection of fish habitats aside from trout.

Other issues discussed during interviews

- There is a county-wide oversight of septic and sewers.
- Use of fertilizers needs more regulation.
- We are doing a bad job of snow storage; runoff can be harmful.
- We could be doing a better job at buffering agricultural (animal) runoff from directly entering creeks.
- Highway runoff into Flat Creek should be filtered/buffered more.
- Land Trust should get as many easements as possible.
- Maybe osprey should be protected as focal species.
- Increased pond development has resulted in increased osprey use, but how these ponds are managed is not regulated-- harmful chemicals could be used.
- Wildlife Friendly Fencing: agricultural should not be exempt, except for when limiting conflict areas, such as elk getting into the hay.
- Fencing regulations are difficult to enforce.
- No mechanism (no permits) required on fencing. It is always reactionary.
- Require permits for perimeter fencing to fix problems (not all but it is a good start).
- Buck rail: try not to use them unless it is too rocky for any other fencing.
- Double fencing: BAD as animals need a running start.

Work on water quality section of LDRs needs to be a priority.

Appendix F

Summary of Riparian Setback Research

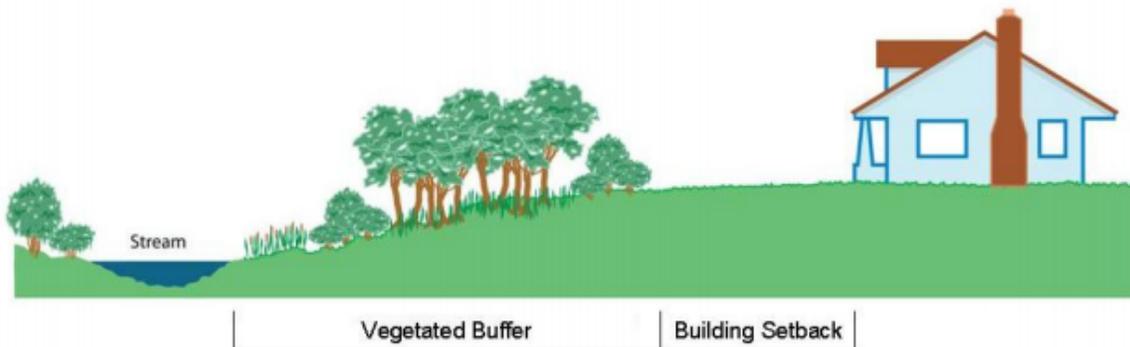
City/County	RIVERS	STREAMS	WETLANDS
Teton County	150 Ft	Between 50-150 ft.	30 Ft
Canmore, Alberta (Bow River)	197 Ft (60 meters)	66 Ft (20 meters)	66 Ft (20 meters)
Lewis & Clark County, MT	250 Ft	100-200 Ft	Not specified in report
Chouteau County, MT (Missouri River)	400 Ft	Not specified in report	Not specified in report
Bozeman, MT (Gallatin River)	100 Ft (or 100-yr floodplain, whichever greater)	50-75 Ft	If adjacent to watercourse, setback measured from edge of wetlands rather than high water mark
Portland, OR (Urban)	30-50 Ft (depending on river and P or C zone)	30-50 Ft (depending on waterway and P or C zone)	50 Ft
Aspen, CO (Roaring Fork River)	100 ft	100 Ft (tributaries of Roaring Fork)	Not specified
Pitkin County, CO	100 Ft (additional setbacks up to 50' can apply, based on site plan analysis)	100 ft (perennial and intermittent streams; can be reduced to 50 ft if applicant can prove no harm)	25 ft from isolated wetland and riparian area; can be reduced to 50 ft if applicant can prove no harm AND/OR additional

		AND/OR additional setbacks up to 50' can apply, based on site plan analysis)	setbacks up to 50' can apply, based on site plan analysis)
Washington State Standard Recommended Riparian Habitat Area (RHA) widths		Type 1 & 2 Streams: 250 Ft Type 3 streams; or other perennial or fish bearing streams 5-20 ft wide: 200 ft Type 3 streams; or other perennial or fish bearing streams < 5 ft wide: 150 ft Type 4 & 5 streams; or intermittent streams and washes: 150-225 ft	
Montana Fish, Wildlife & Parks Recommended Standards	Rivers: 250 ft Vegetative buffer + 50 ft Building setback = 300 ft Total Building Setback	Streams: 150 Ft veg + 50 ft Building = 200 ft Total Building Setback	Other Water Bodies: 100 Ft Vegetated Buffer + 30 Ft Building Setback = 130 Ft Total Building Setback
Colorado Model Land Use Code	All water bodies: Total Possible Setback: 100 ft Inner and Outer	All water bodies: Total Possible Setback: 100 ft Inner and Outer	All water bodies: Total Possible Setback: 100 ft Inner and Outer

Appendix G

Montana Fish Wildlife & Parks 'Total Building Setback'

Type of Water Body	Total Building Setback	Vegetated Buffer	Building Setback
Rivers	≥ 300 feet	≥ 250 feet	≥ 50 feet
Perennial Streams	≥ 200 feet	≥ 150 feet	≥ 50 feet
Other Water Bodies	≥ 130 feet	≥ 100 feet	≥ 30 feet



Total Building Setback = Vegetated Buffer + Building Setback

Citation: Clancy, C.G., M.A. Deleray, and S.T. Opitz. 2012. Use of Building Setbacks in the Water Body Standards of the Fish and Wildlife Recommendations for Subdivision Development in Montana: Justification and Rationale. Montana Fish, Wildlife & Parks Professional Paper, January 9, 2012.

References